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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,785	08/27/2003	Joeri Lof	081468-0305473	4480
909	7590	03/09/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			KO, TONY	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2878	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/648,785	Applicant(s) LOF ET AL.	
	Examiner Tony Ko	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/05/06 has been entered.

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

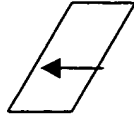
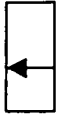
3. Claims 1, 2, 5, 8 and 18-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Den Brink (U.S. Patent 5,481,362).

4. Regarding claim 1, Van Den Brink discloses (Fig. 11) an alignment tool, comprising: a substrate table configured to hold a substrate having a substrate mark (P1, P2) wherein the substrate wherein the substrate mark is at different level from the rest of the surface of the substrate; and an alignment system configured to detect alignment between a reference mark (M1, M2) and the substrate mark using an

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alignment beam of radiation, wherein an optical element (WE2) is adjustably positionable in the path of the alignment beam to adjust the focal plane of the alignment system to focus on the substrate mark at the different level from the rest of the surface of the substrate (Col. 17, Lines 27-35). (That is, Van Den Brink discloses the change of WE2 which will result in focal plane change due to the thickness/shape change. The thickness/shape change will result in different refraction, in term, changes the focal plane.)

5. Regarding claims 1 and 20-24, Van Den Brink discloses (Fig. 9) an alignment tool, comprising: a substrate table configured to hold a substrate having a substrate mark (P1, P2), wherein the substrate mark is at different level from the rest of the surface of the substrate; and an alignment system (60-62, 11 and 13) configured to detect alignment between a reference mark (M1, M2) and the substrate mark using an alignment beam of radiation, wherein an optical (61) element is adjustably (Col. 13, Lines 55-65) positionable in the path of the alignment beam to adjust the focal plane of the alignment system to focus on the substrate mark at the different level from the rest of the surface of the substrate. The adjustability described for element 61 inherently disclose an different optical path length for each such adjustment which would lead in the variation in the focal plane exactly as recited. (See demonstration below) The figure below shows when element 61 is adjusted, the focal plane of the beams b would inherently differ due to the distances traveled. (The arrows represent the length, which the light has to travel. The differences in lengths will result in different refractions thus lead to different focus.)



6. Regarding claim 2, Van Den Brink discloses the optical element is a plane plate.
7. Regarding claim 5, Van Den Brink discloses the alignment system comprises a projection system (1) and the optical element is placed in the path of the alignment beam directly after the alignment system.
8. Regarding claim 8, Van Den Brink discloses the position of the optical element along the alignment beam is altered to adjust the focal plane of the alignment beam.
9. Regarding claims 18 and 19, Van Den Brink discloses the optical element adjusts the focal plane of the alignment system in a direction perpendicular/parallel to the direction of propagation of the alignment beam.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink.

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12. Regarding claims 9-16, Van Den Brink discloses the invention set forth above.

Van Den Brink does not disclose to change the refractive properties of the optical element by having optical elements with different thickness, different optical properties, different refractive indices, different fluids to fill the hollow optical element (fluid with various density). It is well know to change the refractive properties of the optical element by having optical elements with different thickness, different optical properties, different refractive indices, different fluids to fill the hollow optical element (fluid with various density) to change the refraction result. It would have been obvious to a person of ordinary skill in the art at the time of the invention to change the refractive properties of the optical element by having optical elements with different thickness, different optical properties, different refractive indices, different fluids to fill the hollow optical element (fluid with various density) to obtain desired refractive index to direct the light to the desired postioon.

13. Regarding claim 17, Van Den Brink discloses the invention set forth above. Van Den Brink does not disclose wherein the optical element comprises a plurality of optical elements adjustably positionable in the path of the alignment beam such that one ore more may be simultaneously in the path of the alignment beam. It is well known to use multiple optical elements to establish a desired refractive index. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use multiple optical elements to achieve desired refractive indices to direct light onto the desired positon.

14. Regarding claims 3 and 4, Van Den Brink discloses the invention set forth above. Van Den Brink does not disclose the focal plane of the alignment system is changed by 2 or 0.1 mm. It is design choice to change the focal plane by a certain distances. It would have been obvious to a person of ordinary skill in the art at the time of the invention to change the focal plane to focus on the desired position.

Response to Arguments

15. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

16. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: Prior art discloses the invention set forth above. Prior art does not disclose the optical element is attached to the substrate table. Prior art does not disclose comprising front to backside alignment optics configured to direct the alignment beam to the back of the substrate and in which the optical element is placed on the entrance to the front to back side alignment optics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO



THANH X. LUU
PRIMARY EXAMINER